

In the Claims:Claim 1 (currently amended):

1 1. A pulse laser assisted machining method comprising a fine machining process, said fine
2 machining process comprising the following steps of:

3 (a) focusing a laser beam in such a manner that a focal point is located on a workpiece,
4 and that the focal point is separated from a front of the blade of a machining tool by
5 a microdistance;

6 (b) moving the workpiece and the machining tool in relation to each other;

7 (c) softening a focused area by an instantaneous laser heating;

8 (d) advancing the machining tool such that the machined material and the softened
9 material are removed together, and that the same machining mechanism is repeated
10 until a subsequent laser emission;

11 wherein the laser beam is brought into focus such that the focal point is separated from the
12 front of the blade of the machining tool by a distance ranging from several μm to more than
13 10 μm .

Claim 2 (canceled):

1 2. The method as defined in claim 1, wherein the laser beam is brought into focus such that the
2 focal point is separated from the front of the blade of the machining tool by a distance
3 ranging from several μm to more than 10 μm .

Claim 3 (original):

1 3. The method as defined in claim 1, wherein each pulse time of the laser is measured in unit

2 of microsecond or nanosecond.

Claim 4 (original):

1 4. The method as defined in claim 1, wherein the focal heating range of the laser has a width
2 of several μm to more than 10 μm , and a length of more than 10 μm to several hundred μm .

Claim 5 (canceled):

1 5. A laser assisted machining device comprising:

2 a tool mount;

3 a machining tool mounted on a tool mount;

4 a laser head mounted on the tool mount such that the laser beam of the laser head can be
5 focused on a workpiece for instantaneously heating and softening the workpiece;

6 a chip spray mounted on the tool mount for removing chip by a high-pressure fluid emission.

Claim 6 (canceled):

1 6. The device as defined in claim 5, wherein the laser head emits pulsed or continuous laser
2 beam.

Claim 7 (canceled):

1 7. The device as defined in claim 5, wherein the chip spray removes the chip by a high-pressure
2 gas or liquid.

Claim 8 (original):

1 8. A laser assisted machining device comprising:

- 2 a tool mount;
- 3 a machining tool mounted on the tool mount;
- 4 a laser head mounted on the tool mount such that the laser beam of the laser head can be
5 focused on a workpiece for instantaneously heating and softening the workpiece;
- 6 a chip spray mounted on the tool mount for removing chip by a high-pressure fluid emission;
- 7 a digital thermometer disposed in a handle of the machining tool or on the tool mount for
8 monitoring the temperature of a tool tip of the machining tool; and
- 9 a system controller for receiving data of the tool tip temperature so as to control
10 automatically laser.

Claim 9 (original):

- 1 9. The device as defined in claim 8, wherein the chip spray removes the chip by a high-pressure
2 gas or liquid..

Claim 10 (original):

- 1 10. The device as defined in claim 8, wherein the laser head emits pulsed or continuous laser
2 beam.

Claim 11 (original):

- 1 11. The device as defined in claim 8, wherein the digital thermometer is a thermocouple or
2 infrared digital thermometer.